NAVY FUNCTIONAL APPLICATION SERVER CONSOLIDATION AND OPTIMIZATION

UNDERSTANDING THE PROBLEM

Today, the growing complexity of IT functional applications needed to run on the NMCI services infrastructure creates the need to manage an increasing number of components. As applications are employed, organizations believe they need more disk space and capacity, and purchase new servers or overprovision capacity for existing ones. In fact, in 2003, data center budgets still grew as much as 9%, to consume as much as 50–75% of the overall IT budget.

Echelon II CIO's look at their entire domain and its resources; especially in light of trimming costs. Servers that worked well when peaks were encountered were underutilized the rest and majority of the time. The outcome of this provisioning was the formation of mini-data centers within data centers. Findings within Industry show utilization levels as low as 10–25%. Meaning many servers with excess capacity sitting idle nearly 75% of the time.

OVERVIEW

The solution to this issue is an application and vendor-agnostic on-demand server utilization system that can pull from an available pool of resources to automatically self-heal, ultimately providing ongoing availability and performance to end users. This is similar to grid or utility model computing. It is the ability to remain responsive to users through the use of IT; bringing together technology, processes and people to meet business needs.

The goal is not to rebuild the whole system, which can be extremely costly and risky, but to utilize new methodologies such as virtualization and consolidation to better manage the existing system. Managing On-Demand Computing is an ongoing process that can be adopted in gradual and granular fashion, embracing legacy applications, mainframes, servers and other components. CA has developed a four-step process that organizations can use today to optimize server usage, efficiency and performance.

STEP ONE — FACT-BASED ASSESSMENT

In order to minimize skyrocketing asset costs, as well as build models of potential candidates for consolidation, it is critical to perform an analysis of hardware and software configurations. Asset management helps organizations answer the following types of questions: What is IT costing us today?; How do we license software?; What changes are needed?; and What are the projected costs? A comprehensive analysis can identify areas where an organization may be bleeding money.

From a consolidation perspective, asset management can identify servers, memory, CPU, software running on each box and so on, as well as all of the associated costs.

It also would allows Navy organizations to identify groups of servers that are the best candidates for consolidation. With this knowledge, Navy organizations can perform cost/benefit analyses and make additional strategic cost saving decisions.

STEP TWO — BASELINE AND DETERMINE SERVICE LEVELS

The second step toward optimizing server utilization is to define what service means to an organization, and to get a sense of current service levels using clear, quantifiable metrics. This provides a clear insight into the performance goals needed from the new consolidated infrastructure to maintain and exceed Navy demands. By consolidating servers, organizations are effectively changing the technical "foundation" supporting the business; and as this foundation shifts, so does performance response. As an organization's success depends on IT, it is extremely important to ensure that service is not impacted during cost-cutting efforts.

STEP THREE — OPTIMIZE

At this stage, Navy organizations can leverage the information obtained at levels one and two, and are ready to execute informed, intelligent and dynamic techniques to optimize server efficiency and reduce costs. These techniques may include tuning, clustering, server consolidation and/or virtualization. In the ideal on-demand world, a server can automatically request resources such as extra CPU capacity when needed, and a server with extra capacity can automatically provide it.

STEP FOUR — AUTOMATE (RE)ALLOCATION PROCEDURES

By following steps one through three, an organization can begin to optimize server utilization across the enterprise. However, in order for Navy organizations to optimize for the long haul and position themselves for the future, they need to follow cyclical, repeatable processes within each of these steps. This is where consolidation projects often fall short. If fact-based analysis and optimization is merely a one-time occurrence, the gains will be short-lived. Dynamic, self-managing provisioning needs to be the end goal.

CONCLUSION

Navy organizations need to make the most of every dollar invested in order to maximize the value of their server infrastructures with minimal additional investment. Following the techniques identified above, organizations can significantly improve efficiency, service and end-user satisfaction by optimizing existing server resources.